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Subcommittee on Telecommunications and the Internet
House Energy and Commerce Committee
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Mr. Chairman, Ranking Member Markey and members of the Subcommittee, thank you for this opportunity to testify before you today.

On behalf of the Association of Public Television Stations (APTS), I want to offer our strong support for the creation of a national hazard alert system under H.R. 5785, the Warning, Alert, and Response Network (WARN) Act. We commend Representative Shimkus, as well as the co-sponsors of the WARN Act, for their leadership in this vital area. And I applaud you, Chairman Upton, for so swiftly scheduling this hearing.

Public Television's digital infrastructure is being harnessed to play a central role—a dual-use role—in the development of a new, robust and efficient national digital emergency alert and warning system. Digital public television is providing the backbone for what can become a network of networks that delivers instant warnings to people wherever they are or whatever they are doing. This is a system that can reach the mobile, networked, and digital America of the 21st Century.

For Public Television, the creation of a national alert system is a component of a much larger mosaic of how digital technology can be deployed. We are utilizing DTV not only to improve the lives of all Americans, but even to *save their lives* in the event of a natural or man-made emergency. Public Television is proud to be at the leading edge of this effort, through the Digital Emergency Alert System, which I appreciate the opportunity to demonstrate this for you.

Public Television strongly endorses the WARN Act for several reasons. First, it provides a broad national framework that also enables local participation. Second, it authorizes meaningful funding to carry out its goals. Finally, it harnesses the expansive potential of digital technology—namely, DTV datacasting—to create a system that will be comprehensive enough to address national disasters and flexible enough to respond to local and regional events.

This hearing is timely. Congress has devoted considerable time and effort to examine the response and recovery efforts in the aftermath of Hurricane Katrina. Among the conclusions that have emerged is a broad consensus about the need for an integrated, interoperable and flexible alert and warning system. Additionally, on June 26, the President issued an executive order, (EO-13407) that directs federal agencies to develop such a system. And I'm proud to say that Public Television, working directly with the Department of Homeland Security, has already been playing a central role in the

development and testing of some of the key technologies that can bring the goals of WARN and the President's executive order to fruition.

DHS Announces National Roll-Out of Digital EAS (DEAS)

Last week, in fact, the Department of Homeland Security announced that, based on a successful, two-phase pilot, the Department is committing $5 million to fund the initial build-out of a national Digital Emergency Alert System (DEAS). Specifically, this build-out will provide presidential emergency messaging capability—what we call Interim Operating Capability—for national emergency messages. The pilot on which this decision was based, The National DEAS Pilot Project, was the result of a cooperative agreement between DHS and APTS. It spanned 18 months of real-world testing and involved a wide range of public and private partners, from local and national public broadcasting entities to providers from the wireless, cable and electronics industries.

The National DEAS Pilot Project is described in greater detail below. The bottom line, however, is this: we have proven that, using digital datacasting technology, we can provide the foundation for a national, integrated, interoperable presidential messaging and alert and warning system. We can also build out this system highly cost-effectively. That's because our local public stations have raised over $1.1 billion for their conversion to digital broadcasting. Thanks to that investment by local communities, state legislatures, and Congress, public television stations have the digital infrastructure in-place today to provide a backbone for this next generation alert system.

The Department estimates that once the $5 million build-out is complete, it will cost $1 million annually to operate the system. I would submit that given the tremendous value of enabling the President to communicate with the American people at a time of crisis, this price tag is nothing short of a bargain. But it demonstrates that investments in dual-use technology and partnerships with local community institutions—like public broadcasters—can yield impressive returns.

I was pleased to be joined by R. David Paulison, the Director of FEMA, as well as Kenneth Rapuano, Deputy Assistant to the President for Homeland Security, for last week's formal announcement. The announcement took place at the studios of WETA in Arlington—an invaluable player in the pilot.

Digital Emergency Alert System: DEAS

In October 2004, APTS signed a cooperative agreement with the Department of Homeland Security, through FEMA, to design and test an integrated national public alert and warning system using Public Television's digital transmission infrastructure. This system, the Digital Emergency Alert System, is conceived as the foundation for an all-devices, all-hazards, digitally-based emergency alert and warning system. This includes

the distribution of presidential messages to the public through TVs, radios, personal computers, telephones and wireless networks.

The National DEAS Pilot Project was conducted over two phases. Public broadcasting participants in Phase I of the pilot included APTS, the Public Broadcasting Service (PBS), WETA-TV and FM, Maryland Public Television, WHRO (Norfolk, VA), KAKM (Anchorage, AK) and the New Jersey Network. These Public Television entities were joined by WTOP-AM radio, WRC-TV (both in Washington, DC), Comcast Cable, the National Cable & Telecommunications Association (NCTA) and XM Satellite Radio. Participating telecommunications industry organizations include Cingular Wireless, Nextel, T-Mobile, the Cellular Telecommunications and Internet Association (CTIA) and USA Mobility, among others.

Phase I of this pilot project focused primarily on testing whether emergency alert and warning messages could be successfully transmitted to other media and networks, then retransmitted in a workable format—known as the Common Alerting Protocol (CAP). The Pilot was formulated around the concept of real-time activation by FEMA of simulated emergency alert and warning messages through the PBS interconnection system to WETA, who redistributes the alert messaging to other participants in the pilot.

Phase I of the pilot project was a resounding success. We were able to demonstrate that this infrastructure works and works well. (For a more detailed report, please refer to Appendix A, The Interim Report to Congress of the DEAS-NCR Pilot Project.)

Our demonstration shows how the process works. First, FEMA transmits an alert message to the PBS Technical Operations Center over a secure line. Next, PBS distributes that message via satellite uplink to the target public television transmitter (in this case WETA), which then automatically datacasts the message on its DTV transmitter, to be received by any number of wireless devices. (A diagram of this procedure can be found in Appendix B.)

Phase II of the National DEAS Pilot

Based on the success of the first phase of the national pilot, the Department of Homeland Security extended the pilot to lay the foundation for the national roll-out of a digitally-based federal public safety alert and warning system.

Phase II had three major components.

- **Additional testing and evaluation:** Phase II expanded testing sites, including additional state emergency operations centers (EOCs), and incorporating another 19 public broadcast stations outside the National Capital Region.

- **Coordination with other alert and warning pilots and vendors:** This included a pilot that DHS is developing to provide satellite connectivity to the nation's current

Primary Entry Point (PEP) stations. These other pilots are also consistent with DHS's goals for an Integrated Public Alert and Warning System (IPAWS) framework. The goal here is to ensure that a DEAS can work with, and be complementary to, other aspects of an improved national alert and warning system.

- **Development of a DEAS National Deployment Plan:** The DEAS National Deployment Plan includes construction and timeline estimates, technical risk determinations and other technical implementation options.

Phase II confirmed the proof of performance from Phase I, but on a larger and more complex scale. (For a complete list of participants in the pilot, including local Public Television stations, please see Appendix C).

Lessons Learned from the National DEAS Pilot Project

The Pilot Project revealed and/or confirmed several key facts about building a national alert and warning system:

1. **Datacasting is an effective and robust technology**. Datacasting provides a platform that is secure, flexible, scalable and congestion-free. As such, it has the potential to solve many of the problems, such as bottlenecks, that have plagued emergency communications in the past.

2. **Integration and interoperability are within our grasp**. By adopting the Common Alerting Protocol (CAP), the pilot demonstrated that it is possible for alerts to span not just geography but more importantly, myriad devices. The CAP, built on an Internet Protocol framework, permits devices to communicate seamlessly under a common "alert language."

3. **Alert and warning systems need not be built from scratch.** Most of the components of the system tested already exist. We used open standards and commercial, off-the-shelf equipment. Full build-out of a national system requires a modest investment, and the funding provided in the WARN Act would go a long way toward augmenting and expanding these capabilities within states and localities.

The New DEAS Improves on the Old EAS

While I've discussed what we are doing with national alert and warning, it bears mentioning why and how we are doing what we are doing. The current EAS system has its roots in the Cold War and is limited to two basic reception devices: radios and televisions. And yet today, Americans have become fluent in an impressive array of other—often, more portable—devices, including cell phones, personal computers, Blackberries and other PDAs. Under digital version of the EAS that we piloted, the

President could potentially reach almost all Americans quickly with an important message delivered to any one or all of these devices.

It is also important to note that the current EAS was conceived to provide warning for threats that were national in scope – namely, a nuclear attack. Today's most feared threat, acts of terrorism, are by their nature more local or regional in scope, as the residents of New York, Washington, Madrid, London, and most recently, Bombay, can attest. Moreover, as we are painfully aware, threats from natural disasters can arise with little or no warning, leaving local and regional devastation in their wake. That is why the new DEAS will provide a backbone that can be interconnected to deliver alert and warning at the local, regional and national levels.

Role for Public Television

Public Television is a mission-driven institution. When our system was faced with the prospect of undertaking a daunting conversion from an analog to digital transmission platform, we naturally began to explore the many ways that this exciting new digital technology could be used to benefit the American people. With the emergence of a digital broadcasting application called datacasting, we quickly grasped that local digital public television stations could play a role in enhancing public safety. At first the idea focused on natural disasters such as tornadoes. And then came 9/11.

The other critical feature of the Public Television system is our unparalleled reach: nearly 99 percent of American households can receive our analog service. We already reach approximately 95 percent of households with our digital service, and that percentage will continue to grow. Indeed, our system's breadth is impressive, but so is our depth. We are deeply rooted in our communities, typically among the most trusted local institutions and ones that have forged strong linkages to other community institutions and populations.

Next Steps: The WARN Act

The Department of Homeland Security has made an investment in an infrastructure platform that would support regional and local emergency communications. However, the scope of their commitment at this juncture is focused on the national, presidential messaging system. That is where the WARN Act comes in.

We are pleased that the WARN Act, H.R. 5785, sets forth a national emergency alert and warning system based on the digital infrastructure of Public Broadcasting as its platform. But we particularly support the scope of the WARN Act—namely, to bring these emergency communications capabilities, across multiple devices, to states and localities throughout the country. What the Department of Homeland Security is undertaking will probably involve receive sites numbering in the hundreds. With funding from the WARN Act, it would be possible to begin a phased, full implementation of these capabilities in local communities—achieving points of distribution numbering in the tens of thousands.

We're talking about first responders, local hospitals, schools, Red Cross centers, places of employment.

The capabilities of datacasting far surpass simple text messages. Large, robust packets of information—such as, for example, medical treatment protocols in the event of bioterrorism—could be transmitted to the people and organizations that will be on the ground dealing with the aftermath of a crisis.

The WARN Act's commitment of $106 million for emergency communications capabilities will go a long way toward providing the type of comprehensive, integrated public safety communications framework that the American people need and deserve. If the aftermath of Hurricane Katrina has taught us anything, it is that we are all vulnerable in a time of crisis.

I would like to applaud Representative John Shimkus for his leadership in introducing the WARN Act, as well as his committee colleagues who have cosponsored the measure—Representatives Bono, Wynn, Engel and Radanovich—along with other Members of Congress. We believe the WARN Act will prove to be a pivotal piece of legislation, one that can save lives, ease suffering and speed recovery during future disasters.

Satellite Interconnection and Station DTV Transition

I'd like to also mention an issue that is related to the DEAS build-out, and that is the replacement of Public Television's satellite interconnection system. As you are probably aware, national programming is currently distributed from PBS to the more than 350 local public television stations via a satellite interconnection system. That aging system is scheduled to be phased out starting in October.

We are pleased that Congress has funded three of four installments for a replacement, Next Generation Interconnection System over the past three appropriations cycles, enabling PBS to build out the central architecture of the next generation system. Continued appropriations in FY 2007 are extremely important, however, to complete the build-out of the interconnection system, particularly at the local level. This is relevant to the subject of today's hearing, because the same infrastructure that ensures distribution of national programming also forms the backbone for distribution of emergency alert and warning messages under DEAS. Moreover, this Subcommittee has jurisdiction over both Public Broadcasting and, specifically, satellite interconnection.

We were disappointed that the House Appropriations Committee elected to exclude funding for the final installment of the Public Television satellite interconnection system. The Committee also excluded funding needed by our stations to complete the digital transition of their terrestrial facilities, which makes possible our ability to datacast alerts locally and regionally. We urge Members of this Committee, in your role as authorizers of these programs, to convey your support of these line items to your colleagues on the Appropriations Committee. The dual-use value of digital public television is lost if the basic system remains unfinished or is allowed to deteriorate.

Public Telecommunications Facilities Program

Finally, I would also like to mention the Public Telecommunications Facilities Program (PTFP), which is also under this committee's jurisdiction. As many of you are aware, PTFP is a competitive, matching-grant program that is the only long-term source of funding for the acquisition and replacement of public television and radio station equipment. It is also the only program to which stations can turn in an emergency. For example, when Katrina destroyed transmitters and towers in the Gulf, PTFP was there to supply emergency grants to quickly replace that infrastructure. Thousands of citizens in the area depended on local public broadcasts for critical information both prior to and in the aftermath of Katrina—such as evacuation routes, where to secure supplies and how to access other forms of assistance.

This year, PTFP is considering many applications for back-up generator equipment in disaster-prone regions, such as the Gulf Coast. Moreover, we are aware that Mississippi Public Broadcasting has an application pending at PTFP to fund half of the costs to replace antiquated radio transmitters. The transmitters in question are the very same ones that provided evacuation route advisories to citizens before Katrina made landfall and lifesaving information such as where to obtain drinking water following the storm. In some areas these were the only broadcasts to which the local population had access.

PTFP has received modest but stable appropriations at approximately $22 million for the past three fiscal years. Demand for grants has outstripped availability of funds by a margin of up to two-to-one during that period. In addition, 114 Members of the House signed a letter of support for Fiscal 2007 funding for PTFP this year. Yet despite the demonstrated need and widespread support, the Appropriations Committee recommended zero funding for the program, which was later approved by the full House.

We urge Members of this Committee, again in your role as authorizers of this program, to convey your support for PTFP to your colleagues, in this case to those who will be serving as conferees for the final Fiscal 2007 State, Science, Justice and Commerce bill.

Conclusion

Public Television is gratified that we can play a role in helping to shape our nation's next generation emergency alert and warning system, and most importantly to deliver that capability. It is a natural extension of our public service mission. We believe that one day in the near future Public *Digital* Television will play a crucial role during a crisis that will save lives and calm fears.

Thank you for giving me the opportunity to testify today. I look forward to any questions or comments you might have.

DEPARTMENT OF HOMELAND SECURITY
FEDERAL EMERGENCY MANAGEMENT AGENCY

FINAL REPORT TO CONGRESS

DIGITAL EMERGENCY ALERT SYSTEM – NATIONAL CAPITAL REGION PILOT PROJECT

Introduction

In accordance with the House of Representatives Report for the Fiscal Year (FY) 2005 Department of Homeland Security Appropriations Bill (Report 108 – 541), this final report describes the findings of the Department of Homeland Security, Federal Emergency Management Agency (FEMA) and the Information Analysis and Infrastructure Protection (IAIP) Directorate, in consultation with the Department of Commerce, National Oceanic and Atmospheric Administration (NOAA), the Federal Communications Commission (FCC), and the private sector, of a Digital Emergency Alert System (DEAS) demonstration pilot conducted in the National Capital Region (NCR). Because actual DEAS pilot testing did not begin until mid January 2005, the Department requested, and was granted by the Committee, an extension of the time to file a report. As a result, an interim report was provided to the Congress on May 13, 2005.

Legislative Language

The House of Representatives Report for FY – 2005 Department of Homeland Security Appropriations Bill (Report 108 – 541) directed the Emergency Preparedness and Response Directorate to provide a report to the Congress on the findings of a demonstration project using new public television digital broadcasting technology to provide alert and warning to the public.

Specifically, the report directs the Emergency Preparedness and Response Directorate as follows: Secretary of Homeland Security to report to Congress as follows:

> *NATIONAL EMERGENCY COMMUNICATION SYSTEM. The Committee is aware that new public television digital broadcasting technology is currently available to provide a secure, time – sensitive communication system for federal, state, and local governments in the event of an emergency. Since the digital television signal is transmitted wirelessly, the data is not subject to downed telephone lines, clogged cellular services, or Internet hackers. The Committee is also aware of several demonstration projects, including one in the National Capital Region, assessing this technology. The Committee directs the Emergency Preparedness and Response Directorate to provide a report no later than January 31, 2005, on the findings of this demonstration program.*

This report is submitted to Congress in compliance with this request.

Objectives

The main objective of the DEAS pilot was to test the concept of real-time dissemination by FEMA of simulated Emergency Alert System (EAS) messages into the digital satellite interconnection network of the Public Broadcasting Service (PBS) and the local public television member station, WETA. FEMA's specific objectives were:

- Transmission from FEMA of simulated text, audio, and video EAS messages in the Common Alerting Protocol (CAP) format[1] during a specified test schedule.
- Encapsulation of these test EAS messages into the PBS satellite signal and the WETA digital television signal.
- Receipt of the simulated EAS messages within the NCR – via WETA's Digital Television (DTV) signal – by participating media and telecommunications companies and government agencies to include FEMA, NOAA, and the FCC.
- Retransmission and receipt of the EAS test messages over commercial networks in the NCR, to enable receipts on cell phones, pagers, computers, and TVs.
- Receipt of the DEAS test messages by participating public broadcasters outside the NCR – via the PBS satellite signal.
- Passing the previously encapsulated data into the respective DTV signals of the participating public broadcasters outside the NCR.

Background

The DEAS pilot included a wide range of participants from government, radio and TV broadcasters, cable television providers, and wireless telecommunications industries. Coordination of the DEAS - NCR pilot was the joint responsibility of FEMA and the Association of Public Television Stations (APTS). Other key federal entities participating in the pilot included DHS-IAIP, the FCC, and NOAA.

Media industry organizations participating in the pilot included APTS, PBS, WETA-TV and FM (Washington, DC), Maryland Public Television, WHRO-TV (Norfolk, VA), the New Jersey Network, WTOP-AM (Washington, DC), WRC (Washington DC), Comcast Cable and XM Satellite Radio. Also observing was the National Cable and Telecommunications Association.

[1] The Organization for the Advancement of Structured Information Standards (OASIS), a not-for-profit, international consortium that addresses the development, convergence and adoption of e-business standards, has adopted the Common Alerting Protocol (CAP) as an OASIS standard. CAP is a standardized, non-proprietary, data interchange format that simultaneously disseminates consistent all-hazard emergency alerts or public warning messages over different kinds of communications networks and systems, including those designed for multilingual and special needs populations. The CAP format is compatible with emerging and existing formats, such as web service applications, NWS' SAME, and the EAS protocol and offers a number of enhanced capabilities.

Participating telecom industry organizations included Cingular Wireless, Verizon, Nextel, T-Mobile, and USA Mobility. Also observing for the wireless industry was the Cellular Telecommunications and Internet Association (CTIA). A number of systems and technology companies have also participated in the pilot and provided support and equipment, including, SpectraRep, Qualcomm, Kencast, Logic Innovations, Triveni Digital, Hormann America and others.

During the course of the pilot project, and as part of the continued forward progress of a DEAS, additional participants were added to include the Department of Justice, The Weather Channel, and Sprint.

DEAS Pilot Project Findings

The DEAS pilot project has successfully demonstrated how the capabilities of America's public broadcasters can be utilized to dramatically enhance Federal, State, and local governments' ability to provide the American public with critical, lifesaving alert and warning information. Significantly, through the voluntary cooperation and full participation of public and commercial broadcasters, satellite radio, the cellular telephone industry, technology developers, pager service providers, cable operators, and others, FEMA has successfully demonstrated an ability to transmit a variety of alert and warning messages via digital television and satellite to a full range of retransmission media using CAP.

The benefits of a nationwide DEAS, as part of the Federal government's Integrated Public Alert and Warning System (IPAWS), may include:

- Providing an interoperable system that compliments and augments FEMA and DHS efforts to expand, harden, and upgrade the EAS Primary Entry Point (PEP) system for assured Presidential level communications to the nation before, during, or after a catastrophic incident on the homeland.

- Serving as a component of the IPAWS to provide Federal, State, and local emergency managers and leaders with the tools they need to alert America about both man–made and natural disasters, AMBER Alerts, terrorist threats or national emergencies.

- Providing hard–to–reach rural communities with an alert and warning capability.

- Building upon public television's Congressionally mandated digital conversion, a DEAS system may provide more States with the ability to capitalize on digital datacasting to establish a statewide public safety alert system, linking State and regional public safety and emergency management agencies.

- Providing improved alerting to people with disabilities and to those who need alerting in languages other than English.

- Improving the likelihood of timely warning message receipt to a wide range of electronic devices, to include cell phones, pagers, TVs, radios, and computers.

During the six month DEAS – NCR pilot some technical challenges were identified and will continue to be addressed as we progress with a nationwide DEAS. Two major technical concerns included:

- Identification and development of software and hardware solutions that will allow the unhindered passage of an emergency message, in CAP format, from an authorized message originator, through public television's digital signal, to a retransmission media (satellite radio, cellular telephone provider, etc...) to the general public.

- Identification and development of software and hardware solutions that will ensure DEAS interoperability with existing alert and warning systems in use by State and local emergency managers.

Through the active involvement of all DEAS pilot participants and the open dialogue between public and private sector representatives involved in the project, some policy concerns were presented. The major areas of concern were:

- Lack of a national alert and warning policy that identifies a clear vision for the nation's next generation alert and warning system.

- Liability of carriers for the retransmission of emergency alert and warning messaging and assured authentication of message originators.

- Mandatory versus voluntary carriage of emergency messages.

Follow – On Progress

Building upon the success of the DEAS pilot, FEMA and IAIP have begun a second phase expansion of DEAS testing which will replicate the experience in the NCR at other sites across the country using public television's existing digital infrastructure. The objectives of this second phase will be to:

- Develop and demonstrate a prototype national DEAS capability for an all hazards digital alert and warning system.

- Identify additional technology and policy challenges and develop a plan to address each area of concern.

- Develop an implementation plan for a nationwide DEAS that is interoperable with existing systems and is a component of the IPAWS solution.

In addition to the objectives for the second phase expansion of DEAS testing, we have made progress in other areas related to a next generation alert and warning system using our IPAWS approach. Some highlights include:

- The establishment of the White House Task Force on Effective Warning, chartered by the Office of Science Technology and Policy and co–chaired by DHS and the Department of Commerce, which is working to develop a national alert and warning policy.

- Last year's release of the FCC's Notice of Proposed Rulemaking with regard to the Emergency Alert System. We believe that the FCC's efforts in this matter will help us strengthen and improve alert and warning for the general public.

Conclusion

DHS takes seriously its responsibility to ensure the quick and accurate dissemination of alert and warning information to our homeland security partners and the general public. As such, we have made significant progress toward improving, and building, an enhanced capability to provide nationwide alert and warning using cutting edge technologies, in an integrated and coordinated manner. The DEAS – NCR pilot has aptly demonstrated how digital public television can serve as a catalyst for a next generation national all–hazards alert and warning system.

Because there is not a single system that can meet all of the alert and warning requirements of Federal, State, and local users, we will continue to identify, develop, and integrate the most cost-effective and appropriate solutions for public alert and warning. Moreover, by leveraging public–private partnerships with industry service providers, we will be better positioned to reach more of the public, more of the time, with the right information that can save lives and property. Using a DEAS with the nation's public television stations is one example of how we can benefit from such partnerships.

DEAS National Pilot Participants

Federal Agencies:

- FEMA
- FCC
- NOAA

Broadcast Media:

- PBS (satellite backbone)
- WETA (NCR PTV)
- WMPT (Maryland PTV)
- NJN (New Jersey PTV)
- WHRO (Norfolk, VA PTV)
- KAKM TV (Anchorage, AK PTV)
- WRC TV (NBC 4)
- WTOP AM
- WETA FM (Public Radio)
- The Weather Channel

Wireless Services:

- Cingular
- T-Mobile
- Sprint
- Nextel
- USA Mobility
- Verizon
- CTIA (*observer*)

Other Media:

- XM Satellite Radio
- Comcast (cable MSO)
- NCTA (*observer*)

Phase II Expanded Sites (Public Television)

- Alabama Public Television
- Detroit Public Television
- KCTS – Seattle, WA
- KLVX – Las Vegas, NV
- KUED – Salt Lake City, UT
- KWBU – Waco, TX
- Mississippi Public Broadcasting
- New Hampshire Public Broadcasting
- Oregon Public Broadcasting
- KET, The Kentucky Network
- WBCC – Cocoa Beach, FL
- Wisconsin Public Television
- WITF – Harrisburg, PA
- WKNO – Memphis, TN
- WNET/WLIW – New York, NY
- WNPT – Nashville, TN
- WTVP – Peoria, IL
- Houston Public Television
- Iowa Public Television

APTS National Capital Region Pilot Project for a Digitally Based Alert & Warning System